

*What is claimed:*

1. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a

specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means; and

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals,

and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network

means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area; and

means for registration of the fixed terminal means with a specific radio cell coverage area,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

2. The wireless digital personal communications system of Claim 1 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

3. The wireless digital personal communications system of Claim 2 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

4. The wireless digital personal communications system of Claim 2 where said transaction application protocol is the X.25 protocol.

5. The wireless digital personal communications system of Claim 1 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

6. The wireless digital personal communications system of Claim 1 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

7. The wireless digital personal communications system of Claim 1 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

8. The wireless digital personal communications system of Claim 1 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

9. The wireless digital personal communications system of Claim 1 where the radio cell coverage area has a radius of less than 5,280 feet.

10. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication routine for validating a remote device, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a

specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for authenticating each fixed terminal means in a predetermined manner;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset



terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means; and

means for authenticating each portable handset terminal means in a predetermined manner;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said

comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for authenticating each fixed terminal means

in a predetermined manner,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

11. The wireless digital personal communications system of Claim 10 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

12. The wireless digital personal communications system of Claim 11 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

13. The wireless digital personal communications system of Claim 11 where said transaction application protocol is the X.25 protocol.

14. The wireless digital personal communications system of Claim 10 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

15. The wireless digital personal communications system of Claim 10 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

16. The wireless digital personal communications system of Claim 10 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

17. The wireless digital personal communications system of Claim 10 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

18. The wireless digital personal communications system of Claim 10 where the radio cell coverage area has a radius of less than 5,280 feet.

19. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication and security routine for validating a remote device and for securing communications between a remote device and a radio cell base station means, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner;

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption tech-

nique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for securing communications between each portable handset terminal means and said radio cell base station



means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each fixed terminal means in a predetermined manner; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner;

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in

accordance with a predetermined encryption and decryption technique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

20. The wireless digital personal communications system of Claim 19 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

21. The wireless digital personal communications system of Claim 20 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

22. The wireless digital personal communications system of Claim 20 where said transaction application protocol is the X.25 protocol.

23. The wireless digital personal communications system of Claim 19 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

24. The wireless digital personal communications system of Claim 19 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

25. The wireless digital personal communications system of Claim 19 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

26. The wireless digital personal communications system of Claim 19 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

27. The wireless digital personal communications system of Claim 19 where the radio cell coverage area has a radius of less than 5,280 feet.

28. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having dynamic zone groupings of remote devices, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area

from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed handset terminal means in said radio cell coverage area and a switched network means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages

and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel which has the best



signal; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of switched networks means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

a service control point data base means including:

means for registration of the portable handset

~~terminal means with a specific radio cell coverage area; and  
means for registration of the fixed terminal means  
with a specific radio cell coverage area,  
whereby the personal communications system facilitates  
interconnection and switching of wireless call traffic through  
the ISDN interface and the public switched telephone network, or  
any switched network.~~

29. The wireless digital personal communications system of Claim 28 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

30. The wireless digital personal communications system of Claim 29 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

31. The wireless digital personal communications system of Claim 29 where said transaction application protocol is the X.25 protocol.

32. The wireless digital personal communications system of Claim 28 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

33. The wireless digital personal communications system of Claim 28 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

34. The wireless digital personal communications system of Claim 28 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

35. The wireless digital personal communications system of Claim 28 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

36. The wireless digital personal communications system of Claim 28 where the radio cell coverage area has a radius of less than 5,280 feet.

37. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having call forwarding for unanswered calls, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area

from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means; and

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an

operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base

station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of switched networks means; and

means for call forwarding any unanswered call to a predetermined location; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area; and

means for call forwarding any unanswered call to a predetermined location,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.



38. The wireless digital personal communications system of Claim 37 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

39. The wireless digital personal communications system of Claim 38 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

40. The wireless digital personal communications system of Claim 38 where said transaction application protocol is the X.25 protocol.

41. The wireless digital personal communications system of Claim 37 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

42. The wireless digital personal communications system of Claim 37 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

43. The wireless digital personal communications system of Claim 37 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

44. The wireless digital personal communications system of Claim 37 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

45. The wireless digital personal communications system of Claim 37 where the radio cell coverage area has a radius of less than 5,280 feet.

46. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a public switched telephone network and for connecting at least one radio cell with a public switched telephone network, said system having a service control point data base using transaction application protocols, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminal, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the public switched telephone network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area

from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed handset terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a public switched telephone network means; and

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a public switched telephone network means;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a public switched telephone network means;

means for selecting a communications channel of an

operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one public switched telephone network means, each public switched telephone network means operatively disposed with said radio cell base station means, each public switched

telephone network means including:

means for connecting the digital network to each of the radio cell base station means to the public switched telephone network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of public switched telephone networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area; and

means for registration of the fixed terminal means with a specific radio cell coverage area,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network.

47. The wireless digital personal communications system of Claim 46 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

48. The wireless digital personal communications system of Claim 47 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

49. The wireless digital personal communications system of Claim 47 where said transaction application protocol is the X.25 protocol.

50. The wireless digital personal communications system of Claim 46 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

51. The wireless digital personal communications system of Claim 46 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

52. The wireless digital personal communications system of Claim 46 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

53. The wireless digital personal communications system of Claim 46 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

54. The wireless digital personal communications system of Claim 46 where the radio cell coverage area has a radius of less than 5,280 feet.



55. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a public switched telephone network and for connecting at least one radio cell with a public switched telephone network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication routine for validating a remote device, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminal, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the public switched telephone network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a public switched telephone network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a public switched telephone network means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for authenticating each fixed terminal means in a predetermined manner;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages

and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a public switched telephone network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means; and

means for authenticating each portable handset terminal means in a predetermined manner;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a public switched telephone network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals,

and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means; and

means for authenticating each fixed terminal means in a predetermined manner;

at least one public switched telephone network means, each public switched telephone network means operatively disposed with said radio cell base station means, each public switched telephone network means including:

means for connecting the digital network to each of the radio cell base station means to the public switched telephone network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting the first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of public switched telephone networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means

with a specific radio cell coverage area;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for authenticating each fixed terminal means in a predetermined manner,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network.

56. The wireless digital personal communications system of Claim 55 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

57. The wireless digital personal communications system of Claim 56 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

58. The wireless digital personal communications system of Claim 56 where said transaction application protocol is the X.25 protocol.

59. The wireless digital personal communications system of Claim 55 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

60. The wireless digital personal communications system of Claim 55 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

61. The wireless digital personal communications system of Claim 55 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

62. The wireless digital personal communications system of Claim 55 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

63. The wireless digital personal communications system of Claim 55 where the radio cell coverage area has a radius of less than 5,280 feet.

64. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a public switched telephone network and for connecting at least one radio cell with a public switched telephone network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication and security routine for validating a remote device and for securing communications between a remote device and a radio cell base station means, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminal, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the public switched telephone network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the digital



network interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a public switched telephone network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a public switched telephone network means;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner;

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in

accordance with a predetermined encryption and decryption technique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a public switched telephone network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for securing communications between each

portable handset terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a public switched telephone network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each fixed terminal means in a predetermined manner; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

at least one public switched telephone network means,  
each public switched telephone network means operatively disposed  
with said radio cell base station means, each public switched  
telephone network means including:

means for connecting the digital network to each  
of the radio cell base station means to the public switched  
telephone network means;

means for effectuating intercell hand-off from a  
first radio cell coverage area to a second radio cell coverage  
area;

means for converting a first predetermined digital  
network protocol to a second protocol for interconnection to a  
service control point data base means; and

means for determining and accepting calls to and  
from a plurality of public switched telephone networks means; and

a service control point data base means including:

means for registration of the portable handset  
terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means  
with a specific radio cell coverage area;

means for authenticating each portable handset  
terminal means in a predetermined manner;

means for authenticating each fixed terminal means  
in a predetermined manner;

means for securing communications between each  
portable handset terminal means and said radio cell base station

means, said means for security including means for security in accordance with a predetermined encryption and decryption technique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network.

65. The wireless digital personal communications system of Claim 64 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

66. The wireless digital personal communications system of Claim 65 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

67. The wireless digital personal communications system of Claim 65 where said transaction application protocol is the X.25 protocol.

68. The wireless digital personal communications system of Claim 64 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

69. The wireless digital personal communications system of Claim 64 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

70. The wireless digital personal communications system of Claim 64 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

71. The wireless digital personal communications system of Claim 64 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

72. The wireless digital personal communications system of Claim 64 where the radio cell coverage area has a radius of less than 5,280 feet.

73. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a public switched telephone network and for connecting at least one radio cell with a public switched telephone network, said system having a service control point data base using transaction application protocols, said system having dynamic zone groupings of remote devices, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminal, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the public switched telephone network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a



specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a public switched telephone network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a public switched telephone network means;

means for grouping each portable handset terminal means into predetermined-zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal

means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a public switched telephone network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said

comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one public switched telephone network means, each public switched telephone network means operatively disposed with said radio cell base station means, each public switched telephone network means including:

means for connecting the digital network to each of the radio cell base station means to the public switched telephone network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting the first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of public switched telephone networks means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

a service control point data base means including:

means for registration of the portable handset  
terminal means with a specific radio cell coverage area;  
and

means for registration of the fixed terminal means  
with a specific radio cell coverage area,

whereby the personal communications system facilitates  
interconnection and switching of wireless call traffic through  
the ISDN interface and the public switched telephone network.

74. The wireless digital personal communications system of Claim 73 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

75. The wireless digital personal communications system of Claim 74 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

76. The wireless digital personal communications system of Claim 74 where said transaction application protocol is the X.25 protocol.

77. The wireless digital personal communications system of Claim 73 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

78. The wireless digital personal communications system of Claim 73 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

79. The wireless digital personal communications system of Claim 73 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

80. The wireless digital personal communications system of Claim 73 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

81. The wireless digital personal communications system of Claim 73 where the radio cell coverage area has a radius of less than 5,280 feet.

82. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a public switched telephone network and for connecting at least one radio cell with a public switched telephone network, said system having a service control point data base using transaction application protocols, said system having call forwarding for unanswered calls, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the public switched telephone network, said system comprising in combination:

a plurality of radio cell base station means, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a

specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a public switched telephone network means; and

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a public switched telephone network means;

a plurality of portable handset terminal means, each portable handset terminal means operatively disposed with said radio cell base station means, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a public switched telephone network means;



means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal means, each fixed terminal means operatively disposed with said radio cell base station means, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one public switched telephone network means, each public switched telephone network means operatively disposed

with said radio cell base station means, each public switched telephone network means including:

means for connecting the digital network to each of the radio cell base station means to the public switched telephone network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of public switched telephone networks means; and

means for call forwarding any unanswered call to a predetermined location; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area; and

means for call forwarding any unanswered call to a predetermined location,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network.

83. The wireless digital personal communications system of Claim 82 where the means for converting the first predetermined digital network protocol to a second protocol, said second protocol is a transaction application protocol.

84. The wireless digital personal communications system of Claim 83 where said transaction application protocol is the Advanced Intelligent Network (AIN) protocol.

85. The wireless digital personal communications system of Claim 83 where said transaction application protocol is the X.25 protocol.

86. The wireless digital personal communications system of Claim 82 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal feature profiles.

87. The wireless digital personal communications system of Claim 82 where the means for registration of the fixed terminal means includes a means for storing the fixed terminal feature profiles.

88. The wireless digital personal communications system of Claim 82 where the means for registration of the portable handset terminal means includes a means for storing the portable handset terminal user profiles.

89. The wireless digital personal communications system of Claim 82 where the means for registration of the fixed handset terminal means includes a means for storing the fixed terminal user profiles.

90. The wireless digital personal communications system of Claim 82 where the radio cell coverage area has a radius of less than 5,280 feet.

91. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station sites having at least one radio cell base station means, each site having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area

from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means; and

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

a plurality of portable handset terminal sites, each portable handset terminal site operatively disposed initially with an associated radio cell base station site, each portable handset terminal site having a predetermined radio cell reception area, each portable handset terminal site having a plurality of portable handset terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal

means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal sites, each fixed terminal site operatively disposed initially with an associated radio cell base station site, each fixed terminal site having a predetermined radio cell reception area, each fixed terminal site having a plurality of fixed terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an

operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area; and

means for registration of the fixed terminal means with a specific radio cell coverage area,



whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

92. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication routine for validating a remote device, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station sites having at least one radio cell base station means, each site having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for authenticating each fixed terminal means in a predetermined manner;

a plurality of portable handset terminal sites, each portable handset terminal site operatively disposed initially with an associated radio cell base station site, each portable handset terminal site having a predetermined radio cell reception

area, each portable handset terminal site having a plurality of portable handset terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means; and

means for authenticating each portable handset terminal means in a predetermined manner;

a plurality of fixed terminal sites, each fixed terminal site operatively disposed initially with an associated radio cell base station site, each fixed terminal site having a predetermined radio cell reception area, each fixed terminal site having a plurality of fixed terminal means, each radio cell reception area having a predetermined relationship with respect

to said radio cell coverage area, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means; and

means for authenticating each fixed terminal means in a predetermined manner;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

93. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having a predetermined authentication and security routine for validating a remote device and for securing communications between a remote device and a radio cell base station means, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station sites having at least one radio cell base station means, each site having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN

interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner;

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in



accordance with a predetermined encryption and decryption technique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of portable handset terminal sites, each portable handset terminal site operatively disposed initially with an associated radio cell base station site, each portable handset terminal site having a predetermined radio cell reception area, each portable handset terminal site having a plurality of portable handset terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel which has the best signal;

means for seeking and determining an intercell

hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each portable handset terminal means in a predetermined manner; and

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

a plurality of fixed terminal sites, each fixed terminal site operatively disposed initially with an associated radio cell base station site, each fixed terminal site having a predetermined radio cell reception area, each fixed terminal site having a plurality of fixed terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said

comparison;

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

means for authenticating each fixed terminal means in a predetermined manner; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means; and

means for determining and accepting calls to and from a plurality of switched networks means; and

a service control point data base means including:

means for registration of the portable handset

terminal means with a specific radio cell coverage area;

means for registration of the fixed terminal means with a specific radio cell coverage area;

means for authenticating each portable handset terminal means in a predetermined manner;

means for authenticating each fixed terminal means in a predetermined manner;

means for securing communications between each portable handset terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique; and

means for securing communications between each fixed terminal means and said radio cell base station means, said means for security including means for security in accordance with a predetermined encryption and decryption technique,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

94. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having dynamic zone groupings of remote devices, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station sites having at least one radio cell base station means, each site having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the digital

network interface;

means for assigning a communications channel to a specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air;

a plurality of portable handset terminal sites, each

portable handset terminal site operatively disposed initially with an associated radio cell base station site, each portable handset terminal site having a predetermined radio cell reception area, each portable handset terminal site having a plurality of portable handset terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal sites, each fixed terminal site operatively disposed initially with an associated radio cell base station site, each fixed terminal site having a predetermined radio cell reception area, each fixed terminal site having a plurality of fixed terminal means, each radio cell

reception area having a predetermined relationship with respect to said radio cell coverage area, each fixed terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;



means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of switched networks means; and

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area; and

means for registration of the fixed terminal means with a specific radio cell coverage area,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

95. A wireless digital personal communications system, said system having a plurality of predetermined areas of radio cell coverage, said system having incoming and outgoing calling capability for either voice/data/image information, or any combination thereof, said system having an ISDN interface which allows for the interconnection and switching of wireless traffic through a switched network and for connecting at least one radio cell with a switched network, said system having a service control point data base using transaction application protocols, said system having dynamic zone groupings of remote devices, said system having intercell hand-off provided through distributed logic that is resident in the portable handset terminals, distributed logic that is resident in the fixed terminals, distributed logic that is resident in the radio cell base stations, and distributed logic that is resident at predetermined locations in the switched network, said system comprising in combination:

a plurality of radio cell base station sites having at least one radio cell base station means, each site having a predetermined radio cell coverage area, each radio cell base station means having a predetermined radio cell coverage area, each radio cell base station means having means for receiving and transmitting signal messages and a plurality of communications messages, each radio cell base station means including:

means for digital communications with the ISDN interface;

means for assigning a communications channel to a

specific portable handset terminal means in the coverage area from a plurality of available communications channels;

means for assigning a communications channel to a specific fixed terminal means in the coverage area from a plurality of available communications channels;

means for registration of a portable handset terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for registration of a fixed terminal means within a radio cell coverage area for incoming or outgoing calling on the assigned communications channel;

means for effectuating communications between each portable handset terminal means in said radio cell coverage area and a switched network means;

means for effectuating communications between each fixed terminal means in said radio cell coverage area and a switched network means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air;

a plurality of portable handset terminal sites, each portable handset terminal site operatively disposed initially with an associated radio cell base station site, each portable

handset terminal site having a predetermined radio cell reception area, each portable handset terminal site having a plurality of portable handset terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each portable handset terminal means having means for receiving and transmitting signal messages and a plurality of communications messages, each portable handset terminal means including:

means for initially selecting a radio cell base station means for registration of the portable handset terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

a plurality of fixed terminal sites, each fixed terminal site operatively disposed initially with an associated radio cell base station site, each fixed terminal site having a predetermined radio cell reception area, each fixed terminal site having a plurality of fixed terminal means, each radio cell reception area having a predetermined relationship with respect to said radio cell coverage area, each fixed terminal means

having means for receiving and transmitting signal messages and a plurality of communications messages, each fixed terminal means including:

means for initially selecting a radio cell base station means for registration of the fixed terminal means with a switched network means;

means for selecting a communications channel of an operatively disposed radio cell base station means by scanning the available channels, comparing the quality of the signals, and then selecting the communications channel based upon said comparison; and

means for seeking and determining an intercell hand-off from an existing radio cell base station means to a second radio cell base station means;

at least one switched network means, each switched network means operatively disposed with said radio cell base station means, each switched network means including:

means for connecting the digital network to each of the radio cell base station means to the switched network means;

means for effectuating intercell hand-off from a first radio cell coverage area to a second radio cell coverage area;

means for converting a first predetermined digital network protocol to a second protocol for interconnection to a service control point data base means;

means for determining and accepting calls to and from a plurality of switched networks means;

means for grouping each portable handset terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

means for grouping each fixed terminal means into predetermined zone configurations, said configurations capable of being changed over the air; and

a service control point data base means including:

means for registration of the portable handset terminal means with a specific radio cell coverage area; and

means for registration of the fixed terminal means with a specific radio cell coverage area,

whereby the personal communications system facilitates interconnection and switching of wireless call traffic through the ISDN interface and the public switched telephone network, or any switched network.

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